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SITE INSPECTION REPORT FOR SITE 38 BEALE AIR FORCE BASE

FINAL

Prepared for:

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EXECUTIVE SUMMARY

This Site Inspection (SI) Report presents field activities, analytical results, conclusions, and recommendations for Site 38 formerly known as Area of Concern (AOC) 71 located at Beale Air Force Base (AFB). Field data were collected by URS Group, Inc., between May 2004 and October 2004.

The purpose of the SI was to characterize potential lead and polycyclic aromatic hydrocarbon (PAH) contamination within the former skeet range. The SI followed the procedures and plans described in the *Beale AFB Work Plans for Sites 3 and 38, Phase I and Phase II* (URS Group, Inc., 2004a). Investigation guideline (IG) levels specified in the work plan were used to evaluate data during field operations. The IG level concentrations were not considered remediation goals, but were used to guide the decision logic during the SI and to determine whether additional sampling was required.

Site Background

Site 38 is located in the midwestern portion of Beale AFB, bounded by 22nd and Doolittle Drive and D and E Streets (Figure ES-1). The Site is presently vacant and consists of predominantly unpaved terrain covered by annual grassland species.

Table ES-1 lists the contaminants of concern (COCs) detected at Site 38.

Table ES-1. Contaminants of Concern at Site 38, Beale AFB

PAHs, Lead

PAHs = polycyclic aromatic hydrocarbons

Summary of Field Activities

The SI was performed to determine the presence and extent of contamination of lead and PAHs in soil from former skeet range activities. During Phase 1, samples for total PAHs and lead were initially sampled on a grid-type pattern (see Figure ES-2). Samples collected from within the drainage areas exceeding the IG concentrations were additionally analyzed for contaminants in leachate. Additional samples were collected during Phase II to help to determine the horizontal and vertical extent of contamination for the engineering evaluation/cost analysis (EE/CA) and any proposed removal actions.

During the SI in 2004, samples were collected at a total of 54 hand auger borings. Ninety-two field samples were collected and analyzed for lead and 38 field samples were collected and analyzed for PAHs. Leachates from an additional 10 drainage area samples were analyzed for soluble lead and 6 were analyzed for soluble PAHs. No soil gas or groundwater samples were collected during the SI.

Results

Sampling results confirm that both lead and PAHs are present in soil at Site 38. Lead was detected in all samples at concentrations ranging from 3.1 to 44,000 milligrams per kilogram (mg/kg). Concentrations of total PAHs ranged from not detected to 397,600 micrograms per kilogram (µg/kg). Soluble lead and PAH in leachate samples ranged from not detected to 59 µg/L and not detected to 0.053 µg/L, respectively, indicating that the contaminants do not have an affinity to leach and migrate.

The horizontal and vertical extent of lead contamination has been defined to 800 mg/kg. However, the horizontal and vertical extent has not been fully defined to 0.210 mg/kg for PAHs. The horizontal extent of contamination extends to the west at E Street and is not bound on the east in the drainage ditch. Also, one location was not vertically defined.

The results of the Tier 1 human health risk assessment indicate that the potential for human health risk due to exposure to lead and PAHs in shallow soil could be significant for industrial/ commercial workers or residents. The concentrations of COCs in subsurface soil are not high enough to adversely affect human health under industrial/commercial worker and residential exposure conditions.

The results of the ecologic risk assessment indicate potential adverse effects in ecological receptors. Lead was identified as a contaminant of potential ecological concern (COPEC) for all terrestrial, benthic, and aquatic receptors. One PAH was identified as a COPEC for terrestrial plants, several PAHs were identified for soil invertebrates and mammals, and all PAHs were identified as COPECs for birds. Several PAHs were also identified as COPECs for the benthic community, and pyrene was identified for aquatic organisms.

Recommended Action

In order to remediate the site so it may be utilized for proposed future use efforts, Beale AFB is proposing to implement an EE/CA followed by a removal action (i.e., excavation) of the shallow contaminated soil at the site. The EE/CA shall comprise a site walk to further evaluate any potential areas of contamination. The fieldwork mobilization would consist of the staging of heavy equipment, including an excavator, front-end loader, and water trucks. Also, a portable truck scale will be mobilized to the site prior to excavation activities.

As shown in Figure ES-2, the proposed excavation area overlaps with approximately 0.042 acres of potential disturbed seasonal wetlands, according to the Beale AFB Development Areas planning document (September 2001). This overlapping area may affect how the excavation activities discussed below are implemented.

In order to obtain a 95% upper confidence level of human health and ecological risk reduction to meet future anticipated commercial use goals at the site, approximately 4,500 cubic yards (cy) of soil will need to be excavated from the area. It is assumed this will entail the removal of soil with lead concentrations greater than 800 mg/kg (approximately 850 cy) and total PAH concentrations above 210 µg/kg (approximately 3,620 cy). The remaining 30 cy entails both lead and PAH contaminated soil. The soil is to be segregated into approximately 500-cy piles for disposal analysis and then shipped to the appropriate disposal site.

The removal of these concentrations of contaminants will result in the reduction of human health and ecological risk at the site to meet commercial use standards. Once excavation is complete and confirmation sampling activities are finished, the site will be backfilled, using clean borrow materials from an on-base site. The backfill will be excavated and loaded by URS Group, Inc., onto trucks, transported to Site 38, and used to backfill the excavation. Backfilled soil is assumed to be compacted to 90% density, and no pavement or concrete installation is assumed.

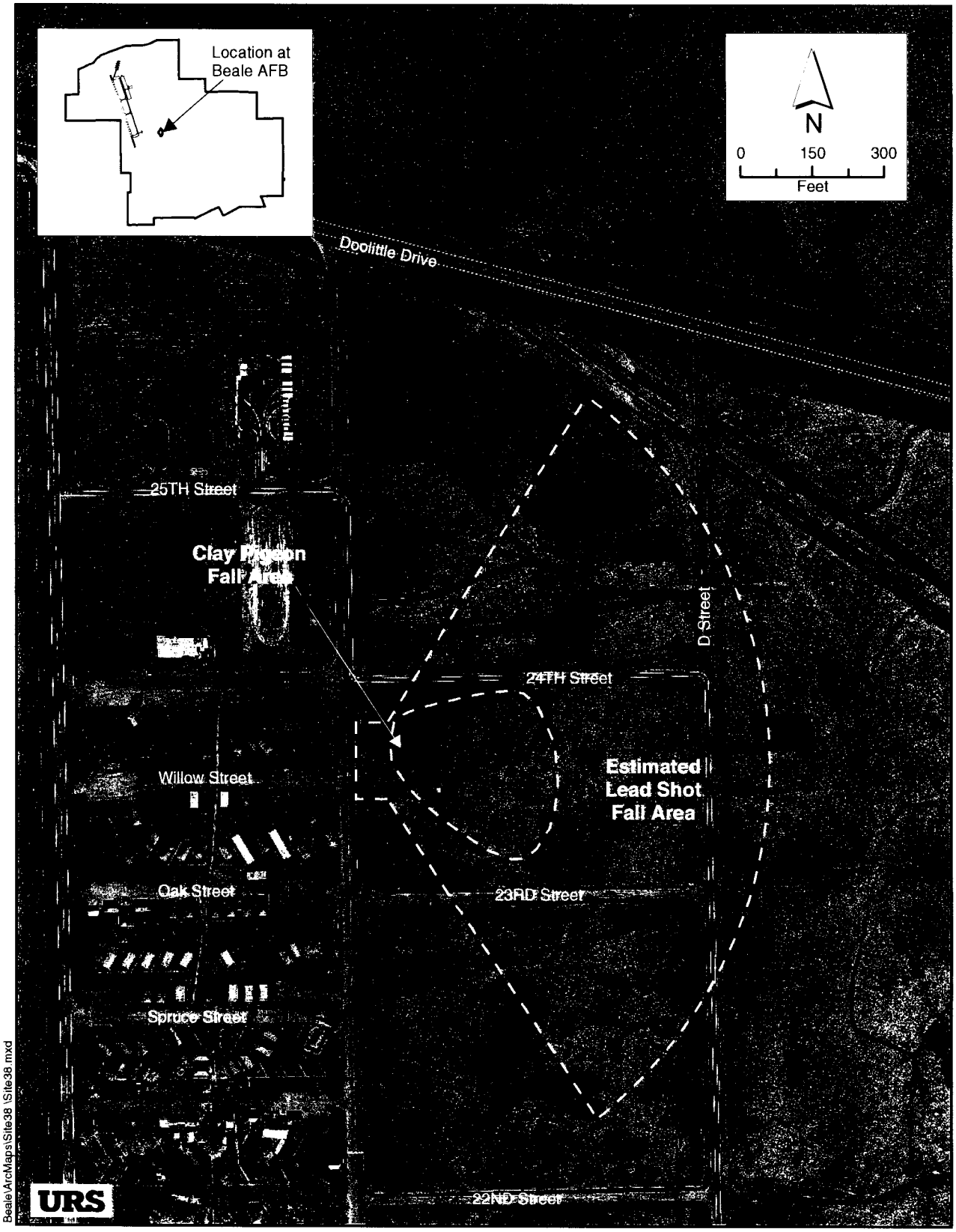

Figure ES-1. Aerial Photograph, Site 38 (Former Skeet Range), Beale AFB

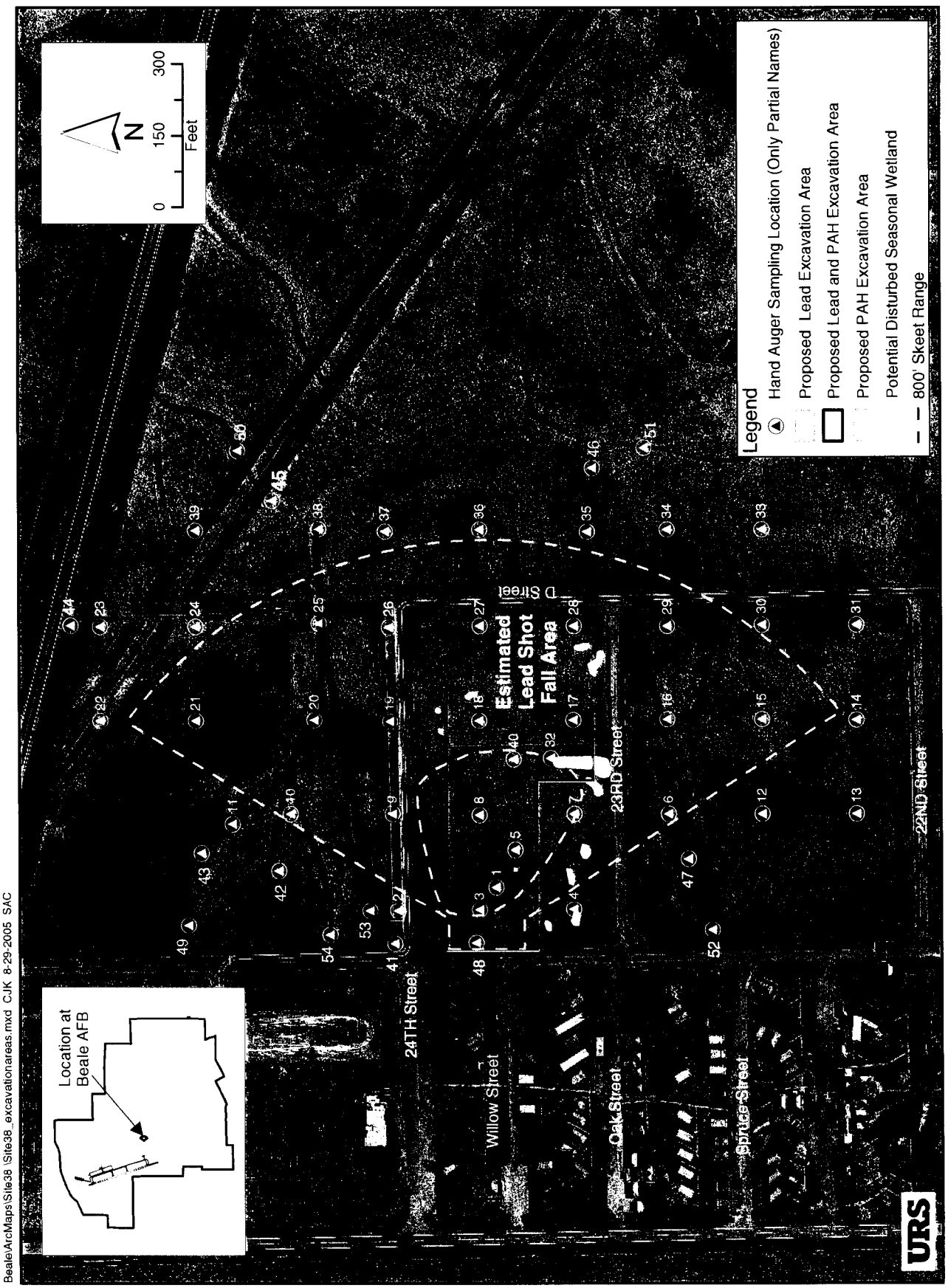

Figure ES-2. Proposed Excavation Areas and Potential Wetlands, Site 38